

## WEST Search History





DATE: Sunday, March 18, 2007

Hide?	<u>Set</u> <u>Name</u>	<u>Query</u>	<u>Hit</u> <u>Count</u>
		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=NO; OP=OR</i>	
<input type="checkbox"/>	L11	((19 or 110) and ((quer\$ or search\$ or request\$ or inquire\$ or enquire\$ or question\$) with (metaquer\$ or meta-quer\$) with (predict\$ or forecast\$ or guess\$ or prohec\$ or future) with (client\$ or customer\$ or consumer\$ or user\$))	1
<input type="checkbox"/>	L10	707/100.ccls.	5143
<input type="checkbox"/>	L9	707/3-5.ccls.	10633
<input type="checkbox"/>	L8	((relevanc\$ or rank\$ or scor\$ or hit or hits) with (metaquer\$ or meta-quer\$))	0
<input type="checkbox"/>	L7	((relevanc\$ or rank\$ or scor\$ or hit or hits) with (metaquer\$ or meta-quer\$) with (predict\$ or forecast\$ or guess\$ or prohec\$ or future))	0
<input type="checkbox"/>	L6	((quer\$ or search\$ or request\$ or inquire\$ or enquire\$ or question\$) with (metaquer\$ or meta-quer\$) with (predict\$ or forecast\$ or guess\$ or prohec\$ or future) with (client\$ or customer\$ or consumer\$ or user\$))	1
		<i>DB=PGPB,USPT,USOC; PLUR=NO; OP=OR</i>	
<input type="checkbox"/>	L5	20050033734.pn.	1
<input type="checkbox"/>	L4	(L2 or L3) and ((meta near quer\$) or meta-quer\$ or metaquer\$)	6
<input type="checkbox"/>	L3	(quer\$ with predict\$.clm.	178
<input type="checkbox"/>	L2	(quer\$ with predict\$.ab.	75
<input type="checkbox"/>	L1	quer\$ with predict\$ <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=NO; OP=OR</i>	1752

END OF SEARCH HISTORY

10633, 728

# Dial g DataStar

options

logout

feedback

help

databases

easy search

## Advanced Search:

Inspec - 1898 to date (INZZ)

limit

Search history:

No.	Database	Search term	Info added since	Results	
CP		[Clipboard]		0	-
1	INZZ	prediction WITH quer\$	unrestricted	27	<a href="#">show titles</a>
2	INZZ	1 AND relevanc\$	unrestricted	2	<a href="#">show titles</a>

[hide](#) | [delete all search steps...](#) | [delete individual search steps...](#)
Enter your search term(s): [Search tips](#) ☐ Thesaurus mapping
 whole document  



 Information added since:  or:    
 (YYYYMMDD)

search

## Advanced Search:

☐ Documents with images

Select special search terms from the following list(s):

- ☒ Publication year 1950-
- ☒ Publication year 1898-1949
- ☒ Inspec thesaurus - browse headings 
- ☒ Inspec thesaurus - enter a term 
- ☒ Classification codes A: Physics, 0-1
- ☒ Classification codes A: Physics, 2-3
- ☒ Classification codes A: Physics, 4-5
- ☒ Classification codes A: Physics, 6
- ☒ Classification codes A: Physics, 7
- ☒ Classification codes A: Physics, 8
- ☒ Classification codes A: Physics, 9

Search term

Info added since

Results

unrestricted

2

whole document 

10/635,728

# Dial g DataStar

options

logoff

feedback

help

databases

search  
page

titles

## Document

Select the documents you wish to save or order by clicking the box next to the document, or click the link above the document to order directly.

save

locally as: PDF document



search strategy: do not include the search strategy



order

copy to  
Clipboard
☒ Select All

1 Using temporal profiles of queries for precision prediction.

2 Co-retrieval: a boosted reranking approach for video retrieval.

☒ document 1 of 2 Order Document

Inspec - 1898 to date (INZZ)

### Accession number & update

0008445089 20070101.

### Title

Using temporal profiles of **queries** for precision **prediction**.

### Conference information

Proceedings of Sheffield SIGIR 2004. The Twenty-Seventh Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, Sheffield, UK, 25-29 July 2004.

### Source

Proceedings of Sheffield SIGIR 2004. The Twenty-Seventh Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, 2004, p. 18-24, 10 refs, pp. xviii+606.  
Publisher: ACM, New York, NY, USA.

### Author(s)

Diaz-F, Jones-R.

### Author affiliation

Diaz, F., Center for Intelligent Inf. Retrieval, Massachusetts Univ., Amherst, MA, USA.

### Abstract

A key missing component in information retrieval systems is self-diagnostic tests to establish whether the system can provide reasonable results for a given **query** on a document collection. If we can measure properties of a retrieved set of documents which allow us to predict average precision, we can automate the decision of whether to elicit **relevance** feedback, or modify the retrieval system in other ways. We use meta-data attached to documents in the form of time stamps to measure the distribution of documents retrieved in response to a **query**, over the time domain, to create a temporal profile for a **query**. We define some useful features over this temporal profile. We find that using these temporal features, together with the content of the documents retrieved, we can improve the **prediction** of average precision for a **query**.

### Descriptors

INFORMATION-RETRIEVAL-SYSTEMS; META-DATA; QUERY-FORMULATION;  
RELEVANCE-FEEDBACK.

### Classification codes

C7250R Information-retrieval-techniques\*;

C6160 Database-management-systems-DBMS.

**Keywords**

**query-temporal-profiles; precision-prediction; information-retrieval- systems; self-diagnostic-test; document-collection; document-retrieval; relevance-feedback; meta-data; time-domain.**

**Treatment codes**

P Practical.

**Language**

English.

**Publication type**

Conference-paper.

**Publication year**

2004.

**Publication date**

20040000.

**Edition**

2005022.

**Copyright statement**

Copyright 2005 IEE.

(c) 2007 The Institution of Engineering and Technology

US Patent and Trademark Office for EIC - Document(s) (INZZ)

☒ **document 2 of 2** Order Document

**Inspec - 1898 to date (INZZ)**; **precision-prediction; information-retrieval- systems; self-diagnostic-test; document-collection; document-retrieval; relevance-feedback; meta-data; time-domain.**

**Accession number & update**

0008369534 20070101.

**Title**

Co-retrieval: a boosted reranking approach for video retrieval.

**Conference information**

Image and Video Retrieval. Third International Conference, CIVR 2004. Proceedings, Dublin, Ireland, 21-23 July 2004.

Sponsor(s): NDP; Sci. Found. Ireland; DCU; IEE.

**Source**

Image and Video Retrieval. Third International Conference, CIVR 2004. Proceedings (Lecture Notes in Comput. Sci. Vol.3115), 2004, p. 60-9, 9 refs, pp. xvii+679, ISBN: 3-540-22539-0.

Publisher: Springer-Verlag, Berlin, Germany.

**Author(s)**

Yan-R, Hauptmann-A-G.

Editor(s): Enser-P, Kompatsiaris-Y, O-Connor-N-E, Smeaton-A-F, Smeulders-A-W-M.

**Author affiliation**

Yan, R., Hauptmann, A.G., Sch. of Comput. Sci., Carnegie Mellon Univ., Pittsburgh, PA, USA.

**Abstract**

Video retrieval compares multimedia **queries** to a video collection in multiple dimensions and combines all the retrieval scores into a final ranking. Although text are the most reliable feature for video retrieval, features from other modalities can provide complementary information. This paper presents a reranking framework for video retrieval to augment retrieval based on text features with other evidence. We also propose a boosted reranking algorithm called Co-Retrieval, which combines a boosting type algorithm and a noisy label **prediction** scheme to automatically select the most useful weak hypotheses for different **queries**. The proposed approach is evaluated with **queries** and video from the 65-hour test collection of the 2003 NIST TRECVID evaluation.

**Descriptors**

CONTENT-BASED-RETRIEVAL; FEATURE-EXTRACTION; IMAGE-RETRIEVAL; INFORMATION-NEEDS; INFORMATION-RETRIEVAL-SYSTEMS; MULTIMEDIA-COMPUTING; QUERY-FORMULATION; RELEVANCE-FEEDBACK; TEXT-ANALYSIS; VIDEO-SIGNAL-PROCESSING.

**Classification codes**

B6135 Optical-image-and-video-signal-processing\*;

Image and Video Retrieval. CIVR 2004. Proceedings

C5260D Video-signal-processing\*;  
C7250R Information-retrieval-techniques;  
C7220 Generation-dissemination-and-use-of-information;  
C6130M Multimedia;  
C5260B Computer-vision-and-image-processing-techniques.

**Keywords**

video-retrieval; **multimedia-queries**; text-features; boosted-reranking-approach; Co-Retrieval-algorithm; **noisy-label-prediction-scheme**; NIST-TRECVID-evaluation.

**Treatment codes**

P Practical;  
T Theoretical-or-mathematical.

**Language**

English.

**Publication type**

Conference-paper.

**Publication year**

2004.

**Publication date**

20040000.

**Edition**

2005015.

**Copyright statement**

Copyright 2005 IEE.

(c) 2007 The Institution of Engineering and Technology

save

locally as: PDF document



search strategy: do not include the search strategy



order

copy to  
Clipboard

document; NIST-TRECVID-evaluation.

Top - News & FAQs - Dialog

© 2007 Dialog


[Subscribe \(Full Service\)](#) [Register \(Limited Service, Free\)](#) [Login](#)

 Search: ☒ The ACM Digital Library ☐ The Guide



THE ACM DIGITAL LIBRARY


[Feedback](#) [Report a problem](#) [Satisfaction survey](#)

Terms used

**metaquery and prediction query and user and relevancy**

Found 45,244 of 198,617

Sort results by


[Save results to a Binder](#)
[Try an Advanced Search](#)
[Try this search in The ACM Guide](#)

Display results


[Search Tips](#)
☐ Open results in a new window

Results 1 - 20 of 200

Result page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [next](#)

Best 200 shown

Relevance scale ☐ ☐ ☐ ☐ ☐

### 1 [Fast detection of communication patterns in distributed executions](#)

Thomas Kunz, Michiel F. H. Seuren

 November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

 Full text available: [pdf\(4.21 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

### 2 [TinyDB: an acquisitional query processing system for sensor networks](#)

Samuel R. Madden, Michael J. Franklin, Joseph M. Hellerstein, Wei Hong

 March 2005 **ACM Transactions on Database Systems (TODS)**, Volume 30 Issue 1

Publisher: ACM Press

 Full text available: [pdf\(1.67 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We discuss the design of an acquisitional query processor for data collection in sensor networks. Acquisitional issues are those that pertain to where, when, and how often data is physically acquired (*sampled*) and delivered to query processing operators. By focusing on the locations and costs of acquiring data, we are able to significantly reduce power consumption over traditional passive systems that assume the a priori existence of data. We discuss simple extensions to SQL for controlli ...

**Keywords:** Query processing, data acquisition, sensor networks

### 3 [DBMiner: a system for data mining in relational databases and data warehouses](#)

Jiawei Han, Jenny Y. Chiang, Sonny Chee, Jianping Chen, Qing Chen, Shan Cheng, Wan Gong, Micheline Kamber, Krzysztof Koperski, Gang Liu, Yijun Lu, Nebojsa Stefanovic, Lara Winstone, Betty B. Xia, Osmar R. Zaiane, Shuhua Zhang, Hua Zhu

 November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

10/6 33, 128

**Publisher:** IBM Press

Full text available:  pdf(280.67 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A data mining system, DBMiner, has been developed for interactive mining of multiple-level knowledge in large relational databases and data warehouses. The system implements a wide spectrum of data mining functions, including characterization, comparison, association, classification, prediction, and clustering. By incorporating several interesting data mining techniques, including OLAP and attribute-oriented induction, statistical analysis, progressive deepening for mining multiple-level knowledge ...

#### 4 Using domain knowledge in knowledge discovery



Suk-Chung Yoon, Lawrence J. Henschen, E. K. Park, Sam Makki

November 1999 **Proceedings of the eighth international conference on Information and knowledge management CIKM '99**

**Publisher:** ACM Press

Full text available:  pdf(878.28 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

With the explosive growth of the size of databases, many knowledge discovery applications deal with large quantities of data. There is an urgent need to develop methodologies which will allow the applications to focus search to a potentially interesting and relevant portion of the data, which can reduce the computational complexity of the knowledge discovery process and improve the interestingness of discovered knowledge. Previous work on semantic query optimization, which is an approach to ...

#### 5 Research centers: Database research at the University of Illinois at Urbana-Champaign



M. Winslett, K. Chang, A. Doan, J. Han, C. Zhai, Y. Zhou

September 2002 **ACM SIGMOD Record**, Volume 31 Issue 3

**Publisher:** ACM Press

Full text available:  pdf(668.38 KB) Additional Information: [full citation](#), [references](#)

#### 6 An object-oriented approach to multi-level association rule mining



Scott Fortin, Ling Liu

November 1996 **Proceedings of the fifth international conference on Information and knowledge management CIKM '96**

**Publisher:** ACM Press

Full text available:  pdf(996.66 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 7 A database perspective on knowledge discovery



Tomasz Imielinski, Heikki Mannila

November 1996 **Communications of the ACM**, Volume 39 Issue 11

**Publisher:** ACM Press

Full text available:  pdf(304.96 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 8 Visualizing software objects: Challenges in graph-based relational data visualization

Emanuel G. Noik

November 1992 **Proceedings of the 1992 conference of the Centre for Advanced Studies on Collaborative research - Volume 1 CASCON '92**

**Publisher:** IBM Press

Full text available:  pdf(1.44 MB) Additional Information: [full citation](#), [abstract](#), [references](#)

During recent years we have witnessed a growing trend toward the use of visual interfaces to view and query databases. The graph topovisual formalism is particularly well-suited for depicting relational data. The vertices of a directed graph represent a set of entities, while arcs represent relationships among the entities. This paper studies the functional requirements of a hypothetical graph visualization facility (GVF) by surveying past work in related areas and by describing challenging prob ...


9 A classification-based methodology for planning audit strategies in fraud detection



F. Bonchi, F. Giannotti, G. Mainetto, D. Pedreschi

August 1999 **Proceedings of the fifth ACM SIGKDD international conference on Knowledge discovery and data mining KDD '99**

Publisher: ACM Press

Full text available:  pdf(1.18 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** classification, data mining, decision trees, fraud detection, integration of querying and mining, knowledge discovery in databases, logic-based database languages


10 Web clustering and usage mining: Evaluation of web usage mining approaches for user's next request prediction



Mathias Géry, Hatem Haddad

November 2003 **Proceedings of the 5th ACM international workshop on Web information and data management WIDM '03**

Publisher: ACM Press

Full text available:  pdf(314.69 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Analysis of Web server logs is one of the important challenge to provide Web intelligent services. In this paper, we describe a framework for a recommender system that predicts the user's next requests based on their behaviour discovered from Web Logs data. We compare results from three usage mining approaches: association rules, sequential rules and generalised sequential rules. We use two selection rules criteria: highest confidence and last-subsequence. Experiments are performed on three colle ...

**Keywords:** association rules, evaluation, frequent generalised sequences, frequent sequences, web usage mining

11 Posters: Action modeling: language models that predict query behavior



G. Craig Murray, Jimmy Lin, Abdur Chowdhury

August 2006 **Proceedings of the 29th annual international ACM SIGIR conference on Research and development in information retrieval SIGIR '06**

Publisher: ACM Press

Full text available:  pdf(161.23 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a novel language modeling approach to capturing the query reformulation behavior of Web search users. Based on a framework that categorizes eight different types of "user moves" (adding/removing query terms, etc.), we treat search sessions as sequence data and build n-gram language models to capture user behavior. We evaluated our models in a prediction task. The results suggest that useful patterns of activity can be extracted from user histories. Furthermore, by examining prediction ...

**Keywords:** query modeling, query reformulation, user models, web search

12 Query result processing: Adaptive web search based on user profile constructed without any effort from users

Kazunari Sugiyama, Kenji Hatano, Masatoshi Yoshikawa

May 2004 **Proceedings of the 13th international conference on World Wide Web WWW '04**

Publisher: ACM Press

Full text available:  pdf(311.96 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Web search engines help users find useful information on the World Wide Web (WWW). However, when the same query is submitted by different users, typical search engines return the same result regardless of who submitted the query. Generally, each user has different information needs for his/her query. Therefore, the search result should be adapted to users with different information needs. In this paper, we first propose several approaches to adapting search results according to each user's need ...

**Keywords:** WWW, information retrieval, user modeling

13 Query expansion based on predictive algorithms for collaborative filtering

Keiichi Hoashi, Kazunori Matsumoto, Naomi Inoue, Kazuo Hashimoto

September 2001 **Proceedings of the 24th annual international ACM SIGIR conference on Research and development in information retrieval SIGIR '01**

Publisher: ACM Press

Full text available:  pdf(145.83 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

14 Information Retrieval: Predictive caching and prefetching of query results in search engines

Ronny Lempel, Shlomo Moran

May 2003 **Proceedings of the 12th international conference on World Wide Web WWW '03**

Publisher: ACM Press

Full text available:  pdf(212.73 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We study the caching of query result pages in Web search engines. Popular search engines receive millions of queries per day, and efficient policies for caching query results may enable them to lower their response time and reduce their hardware requirements. We present PDC (probability driven cache), a novel scheme tailored for caching search results, that is based on a probabilistic model of search engine users. We then use a trace of over seven million queries submitted to the search engine A...

**Keywords:** caching, query processing and optimization

15 Queries: Predicting query performance

Steve Cronen-Townsend, Yun Zhou, W. Bruce Croft

August 2002 **Proceedings of the 25th annual international ACM SIGIR conference on Research and development in information retrieval SIGIR '02**

Publisher: ACM Press

Full text available:  pdf(258.74 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We develop a method for predicting query performance by computing the relative entropy

between a query language model and the corresponding collection language model. The resulting *clarity score* measures the coherence of the language usage in documents whose models are likely to generate the query. We suggest that clarity scores measure the ambiguity of a query with respect to a collection of documents and show that they correlate positively with average precision in a variety of TREC tests ...

**Keywords:** ambiguity, clarity, information theory, language models

# 16 Query Optimization: Predicting the cost-quality trade-off for information retrieval



queries: facilitating database design and query optimization

Henk Ernst Blok, Djoerd Hiemstra, Sunil Choenni, Franciska de Jong, Henk M. Blanken, Peter M.G. Apers

October 2001 **Proceedings of the tenth international conference on Information and knowledge management CIKM '01**

**Publisher:** ACM Press

Full text available: pdf(1.42 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Efficient, flexible, and scalable integration of full text information retrieval (IR) in a DBMS is not a trivial case. This holds in particular for query optimization in such a context. To facilitate the bulk-oriented behavior of database query processing, a priori knowledge of how to limit the data efficiently prior to query evaluation is very valuable at optimization time. The usually imprecise nature of IR querying provides an extra opportunity to limit the data by a trade-off with the quality ...

**Keywords:** Zipf, databases, efficiency, fragmentation, information retrieval, quality, trade-off

# 17 Ranking and estimation: Ranking robustness: a novel framework to predict query performance



Yun Zhou, W. Bruce Croft

November 2006 **Proceedings of the 15th ACM international conference on Information and knowledge management CIKM '06**

**Publisher:** ACM Press

Full text available: pdf(301.58 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we introduce the notion of ranking robustness, which refers to a property of a ranked list of documents that indicates how stable the ranking is in the presence of uncertainty in the ranked documents. We propose a statistical measure called the robustness score to quantify this notion. We demonstrate that the robustness score significantly and consistently correlates with query performance in a variety of TREC test collections including the GOV2 collection. We compare the robustness ...

**Keywords:** query performance prediction, ranking robustness

# 18 Posters: Query word deletion prediction



Rosie Jones, Daniel C. Fain

July 2003 **Proceedings of the 26th annual international ACM SIGIR conference on Research and development in information retrieval SIGIR '03**

**Publisher:** ACM Press

Full text available: pdf(95.01 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Web search query logs contain traces of users' search modifications. One strategy users

employ is deleting terms, presumably to obtain greater coverage. It is useful to model and automate term deletion when arbitrary searches are conjunctively matched against a small hand constructed collection, such as a hand-built hierarchy, or collection of high-quality pages matched with key phrases. Queries with no matches can have words deleted till a match is obtained. We provide algorithms which perform ...

**Keywords:** query modeling, query reformulation, web search

19 Special session 1: query systems for data retrieval in large personal image and video databases: To search or to label?: predicting the performance of search-based automatic image classifiers

Lyndon S. Kennedy, Shih-Fu Chang, Igor V. Kozintsev

October 2006 **Proceedings of the 8th ACM international workshop on Multimedia information retrieval MIR '06**

**Publisher:** ACM Press

Full text available:  pdf(1.59 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this work we explore the trade-offs in acquiring training data for image classification models through automated web search as opposed to human annotation. Automated web search comes at no cost in human labor, but sometimes leads to decreased classification performance, while human annotations come at great expense in human labor but result in better performance. The primary contribution of this work is a system for predicting which visual concepts will show the greatest increase in performan ...

**Keywords:** performance prediction, search-based concept models

20 Mining knowledge at multiple concept levels

Jiawei Han

December 1995 **Proceedings of the fourth international conference on Information and knowledge management CIKM '95**

**Publisher:** ACM Press

Full text available:  pdf(683.93 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Chang, Shih-Fu, Kozintsev, Igor V.

Proceedings of the 8th ACM international workshop on Multimedia

Results 1 - 20 of 200

Result page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [next](#)

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2007 ACM, Inc.

[Terms of Usage](#) [Privacy Policy](#) [Code of Ethics](#) [Contact Us](#)

Useful downloads:  Adobe Acrobat  QuickTime  Windows Media Player  Real Player

... at great expense in human labor but ...

... contribution of this work is a sy- ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...

... algorithms which perform ...